

AGRICULTURAL EXPERIMENT STATION
MICHIGAN AGRICULTURAL COLLEGE

East Lansing, Michigan

The Grape-Berry Moth in 1922

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FIG. I.—Grape in bud, 23 days before full bloom.

At no time in the past has the grape-berry moth been so destructive in Michigan as during the summer of 1922.

We know that the life-history of the insect is variable, but in general it is as follows:—

The winter is passed in the cocoon, and the moths of the first (spring) brood may appear as early as the third of June and continue to emerge until after the first of August.*

*Johnson and Hammar. U. S. Department of Agriculture, Bureau of Entomology, Bulletin No. 116, part 2.

The moth commences to lay her eggs about four days after emerging, and four more days are required for the eggs to hatch under favorable conditions.

Over-lapping this spring brood there is a second (summer) brood which commences to come out by the first of August and continues until the middle of September, the moths coming out freely during the entire month of August.

A third (fall) brood commences to produce larvae about the end of August and eggs

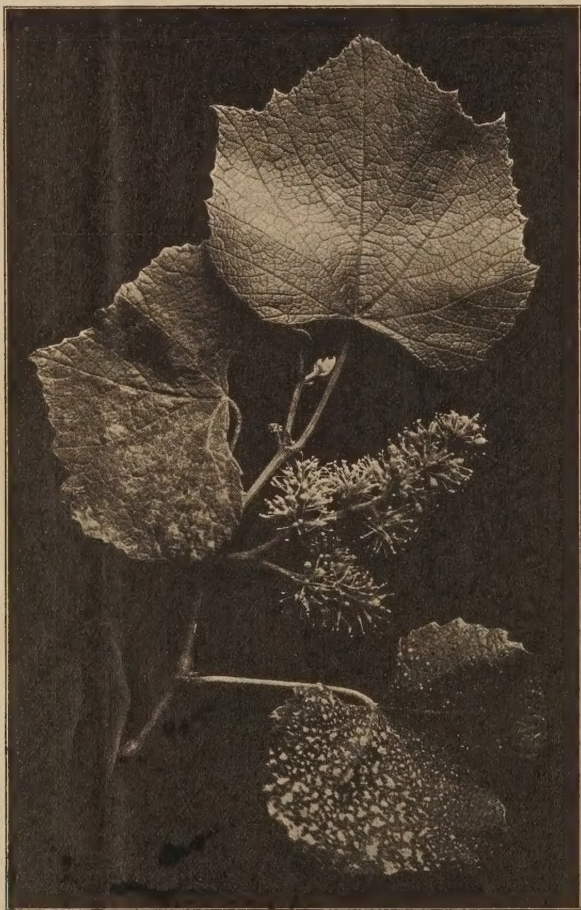


FIG. II.—Grape in full bloom.

continue to hatch until the middle of September. Thus we may have three broods which overlap noticeably. We find also, in some instances, that moths have been recorded as coming out in late May.

In East Lansing during 1922 the Concords began to bloom on June 6 and the petals had practically all fallen by the 12th. The season was abnormally early.

It, therefore, seems reasonable that a spray should be applied just before the buds open (see Fig. 1), and again when the fruit is nicely set and all the petals have fallen (Fig. 2). The second brood comes about the middle of July, but by that time the bunches will have

closed up and the berries will have become tightly packed so that one cannot coat their inner surfaces with a spray. Furthermore, the berry-moth loves to lay her eggs right in between the berries in the center of the cluster. Therefore, spray as late as possible before the berries touch (see Fig. 3), while it is still possible to reach the inside of each cluster. Spray once more about two weeks later, thus making four sprays in all.

In all of these sprayings shoot upward from below, applying the spray under good pressure and with liberality. Hit the clusters and do not mind the leaves as the "worms"

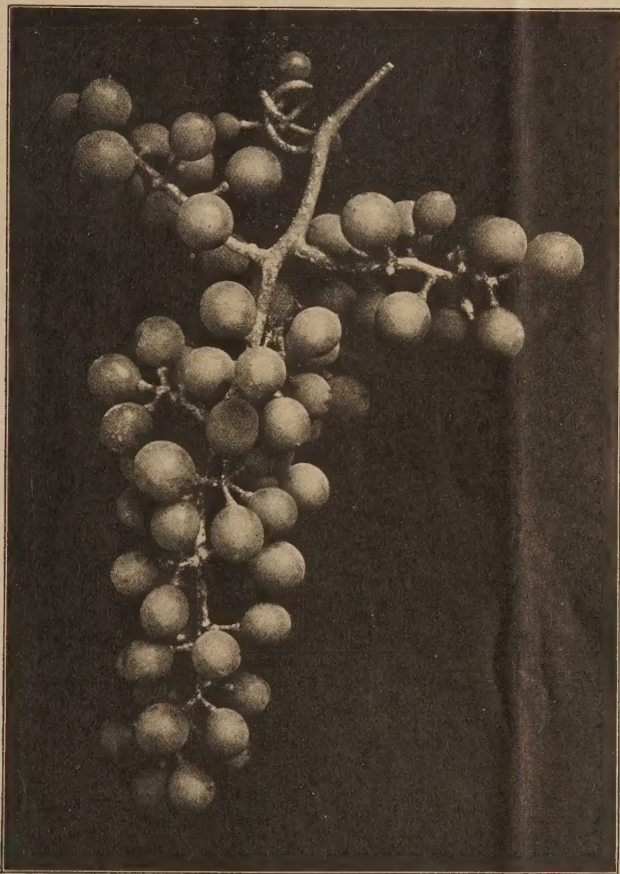


FIG. III.—Grapes half grown, just before they close and form a compact cluster. Time for third spray.

work on the fruit and do not feed on the leaves. The loss during 1922 was caused by late larvae. The grapes looked fine for the first half of the season, but when they began to color the trouble began to show.

The pupal stage should be passed in little flaps cut in the leaves, which flaps normally fall to the ground. Careful search during 1921-22, however, failed to reveal more than a very few such flaps. Notwithstanding our failure to find these flaps, we believe the winter to be passed in cocoons on the surface of the ground. Therefore, plow under the cover-crop as early as possible. In order to make this practicable, plant the cover-crop early,

so that it can get its growth before winter sets in. If the sowing is delayed, one has to wait until late in the spring before plowing, and for this reason fails to cover up most of the cocoons, on the ground. Plow if possible in April.

Clean up brush and trash in the vicinity, since the damage seems to be greatest around the borders of the vineyards. It may be well also to put an extra spray on the vines in the vicinity of woods or brush for the same reason.

Use a high pressure and put in resin fish-oil soap for a sticker, one pound to a barrel of spray mixture. Use either arsenate of lead, one and one-half pounds to a barrel of bordeaux



FIG. IV.—Grape-berries just set. Blooming period completed. Time for second spray.

or a pint of Kedzie mixture, or, if you prefer, add some arsenate of lead to the Kedzie mixture. Use the follow-up method with hand spraying, shooting upward from below. Put on about three hundred gallons to the acre in later sprays.

During 1922, by far the best results were obtained when the spray was applied by hand nozzles on short rods, the men following the rig on foot. Very few were able to secure satisfactory results when fixed nozzles, set on booms, were used.

There are still some points in the life-history of this pest to be cleared up, and it is hoped and expected that we shall be able to settle some of these points during the coming summer.